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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,150	08/31/2000	Kazuhiro Hoshino	SON-1894	2607

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EXAMINER

WILSON, JACQUELINE B

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/652,150

Applicant(s)

HOSHINO ET AL.

Examiner

Jacqueline Wilson

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2 and 4-11 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 2 and 4-11 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 2, and 4-9 have been considered but are moot in view of the new ground(s) of rejection.

Please see new ground of rejection below.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 2, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda and Majumdar et al (US 6,187,522).**

Regarding Claim 2, Ueda teaches a camera module comprising a substrate (fig. 55, element 1) provided with a through-hole for light transmission (3 and 231), an imaging element having a light receiving portion (referred to as pixels, col. 2, lines 14-15), wherein the imaging element is flip chip mounted on a first side of the substrate (col. 27, lines 62-67) such that the light receiving portion is exposed through the through-hole (see fig. 55), and a lens unit (4) mounted on a second side of the substrate so as to cover a space over the light receiving portion of the imaging element. However, Ueda does not specifically disclose the substrate is flexible. Majumdar et al teaches that flexible substrates are notoriously well known in the art for use in imaging products (col. 1, lines

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25+). It is advantageous to use flexible substrates for the purpose of providing ease of transport, conveyance, and manufacturing (col. 1, lines 26+). Therefore, it would have been obvious to one having ordinary skill in the art to use a flexible substrate in Ueda for easy manufacturing of the device.

Claim 10 is analyzed and discussed with respect to Claim 2 (wherein the optical element having an optical portion is the imaging element; referred to as pixels, col. 2, lines 14-15). Furthermore, Ueda teaches a system module (fig. 21, 17) connected to the substrate in the optical module, wherein integrated circuits are inherently mounted on the system module for proper processing of signals.

Regarding Claim 11, Ueda teaches the optical element is a light emitting element (referred to as CCD having pixels).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda, and in further view of Sako et al. (US 6,724,503).**

Regarding Claim 6, Ueda teaches an imaging device comprising a substrate (fig. 55, element 1) having a through-hole (231) for light transmission, and an imaging element (12) having a light receiving portion on a first surface (referred to as pixels, col. 2, lines 14-15), wherein the imaging element is flip chip mounted (col. 27, lines 62-67)

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on one side of the substrate such that the light receiving portion is exposed through the through-hole (see fig. 55). However, Ueda does not specifically disclose a shielding layer on a back surface of the imaging element, wherein the back surface is opposite to the first surface of the imaging element having the light receiving portion. Sako et al teaches covering a light shielding layer (fig. 4, elements 61 and 4) on the reverse side of an image sensor board (6). This blocks out certain amounts of light that passes through the image sensor board thereby enhancing the image reading quality provided by an image sensor (col. 2, lines 2-6). Therefore, it would have been obvious to modify Ueda with Sako et al by including a light shielding layer on the back surface of the imaging element for the purpose of prevent unwanted light from effecting the accumulated charge.

Claims 4 and 5 are analyzed and discussed with respect to Claim 6. (See rejection of Claim 6 above.)

Regarding Claim 7, Ueda does not specifically disclose a black resin applied to the periphery of the imaging element. However, Sako et al teaches it is well known to use a casing (4) formed of a black synthetic resin applied to the periphery of the imaging element (see fig. 4) so as to cover the side surface and the back surface of the imaging element, a part of the resin constituting the shielding layer (see fig. 4, elements 61 and 4). This prevents unwanted light from affecting the quality of the image signal. By including this black resin on the periphery of the imaging element of Ueda including the connecting portion between the substrate and the imaging element by the flip chip mounting provides light restriction from all sides of the imaging element except for the side for receiving incoming light. Therefore, it would have been obvious to one having ordinary skill in the

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art to include a black resin applied to the periphery of the imaging element including the connecting portion between the substrate and the imaging element.

Regarding Claim 8, Ueda teaches camera module comprising a substrate (fig. 55, element 1) having a through-hole (231) for light transmission, an imaging element (12) having a light receiving portion on a first surface of the imaging element (referred to as pixels, col. 2, lines 14-15), wherein the imaging element is flip chip mounted (col. 27, lines 62-67) on a first side of the substrate such that the light receiving portion is exposed through the through-hole (see fig. 55), and a lens unit mounted on a second side of the substrate (4). However, Ueda does not specifically disclose a shielding layer on the back surface of the imaging element. Sako et al teaches covering a light shielding layer (fig. 4, elements 61 and 4) on the reverse side of an image sensor board (6). This blocks out certain amounts of light that passes through the image sensor board thereby enhancing the image reading quality provided by an image sensor (col. 2, lines 2-6). Therefore, it would have been obvious to modify Ueda with Sako et al by including a light shielding layer on the back surface of the imaging element for the purpose of prevent unwanted light from effecting the accumulated charge.

Claim 9 is analyzed and discussed with respect to Claim 8. (See rejection of Claim 8 above.)

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacqueline Wilson whose telephone number is (703) 308-5080. The examiner can normally be reached on 8:30am-5:00pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JBW
03/2/05


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